

What is claimed is:

1. A locomotive radio communication system, comprising:
a standard mounting plate;
a modular radio communications unit, and;
5 a communications hub.
2. The locomotive radio communication system of claim 1 wherein the modular radio communications unit includes a housing.
3. The locomotive radio communication system of claim 2 wherein the housing has at least two radio electronic compartments and at least one antenna.
- 10 4. The locomotive radio communication system of claim 3 further comprising at least one radio electronics unit.
5. The locomotive radio communication system of claim 4 wherein the at least one radio contains at least one baseband interface module integrated into the radio, the baseband interface module being capable of translating a radio baseband
15 protocol to a standard communications hub protocol.
6. The locomotive radio communication system of claim 5 wherein the at least one radio electronics unit is mounted within the housing.
7. The locomotive radio communication system of claim 6 wherein the modular radio communications unit is connected to the communications hub by a
20 serial cable.
8. The locomotive radio communication system of claim 7 wherein the at least one baseband interface module contains a factory programmed unique radio identification code.
9. The locomotive radio communication system of claim 7 wherein the
25 modular radio communications unit contains at least one radio capable of both voice and data communications.
10. The locomotive radio communication system of claim 7 further comprising an RF coaxial cable connecting the at least one radio to the at least one antenna such that the RF coaxial cable is positioned outside the cab of the locomotive.

11. The locomotive radio communication system of claim 7 wherein the communications hub contains a unique registration code identifying a specific locomotive.

5 12. The locomotive radio communication system of claim 11 wherein the at least one baseband interface module contains a factory programmed unique radio identification code.

13. The locomotive radio communication system of claim 12 wherein a host data center utilizes the unique radio identification code to allow for automatic
10 remote commissioning of a radio upgrade.

14. The locomotive radio communication system of claim 2 wherein the housing has a first sunscreen and a second sunscreen to shield the modular communications unit from the sun.

15. The locomotive radio communication system of claim 14 further
15 comprising a plurality of vent openings to allow air to circulate within the housing.

16. The locomotive radio communication system of claim 14 wherein the housing has an insulating air gap to trap air beneath the housing.

17. The locomotive radio communication system of claim 16 wherein the modular radio communications unit contains at least one radio capable of both voice
20 and data communications.

18. The locomotive radio communication system of claim 17 further comprising an RF coaxial cable connecting the at least one radio to the at least one antenna such that the RF coaxial cable is positioned outside the cab of the locomotive.

19. A locomotive radio communication system comprising:
25 a modular radio communications unit having a standard mounting plate

being capable of attachment to a roof of a locomotive, the modular radio communications unit having a housing with a first sunscreen, a second sunscreen, at least one air insulation

gap, at least two radio electronics compartments, a first plurality of vent openings, and a second plurality of vent openings, the first and second plurality of vent openings configured to create an air ventilation gap;

- 5 at least one radio electronics unit mounted within the housing;
 at least one antenna mounted to the housing, the antenna being covered by an antenna dome;
 an RF coaxial cable connecting the at least one radio electronics unit to the at least one antenna, and;
 10 a communications hub connected to the modular radio communications unit by a multichannel highband width baseband serial cable.

20. A method of creating a locomotive radio communication system, comprising:

- 15 installing a standard mounting plate capable of being mounted to a roof of a cab on a locomotive;
 preparing a modular radio communications unit having a housing containing at least one radio;
 installing the housing onto the standard mounting plate;
 installing a least one antenna on the housing;
 20 connecting the at least one antenna to the at least one radio with an RF coaxial cable;
 installing a communications hub inside the cab of the locomotive, and;
 connecting the communications hub to the at least one radio in the housing with a multichannel highband width baseband serial
 25 cable capable of communicating with the at least one radio and also capable of transmitting power from the communications hub to the at least one radio.

21. The method of claim 20 including designing the at least one radio to contain at least one baseband interface module integrated into the radio, the baseband

interface module being capable of translating a radio baseband protocol to a standard communications hub protocol.

22. The method of claim of 21 including preparing the housing to have at
5 least one sunscreen and a plurality of vent openings to reduce the temperature of the components of the modular radio communications unit.

23. The method of claim 21 including designing the communications hub to have a unique registration code identifying a specific locomotive.

24. The method of claim 21 including designing the at least one baseband
10 interface module to have a factory programmed unique radio identification code.

25. The method of claim of 24 including preparing the housing to have at least one sunscreen and a plurality of vent openings to reduce the temperature of the components of the modular radio communications unit.

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